

## Highway noise walls

In 1989, the Virginia Department of Transportation (VDOT) formally established a policy to lessen the impact of highway traffic noise on people in neighborhoods and other noise-sensitive areas, such as churches, schools, hospitals and certain public recreational areas. VDOT's Noise Abatement Policy is based on Federal Highway Administration regulations.

This brochure explains how VDOT carries out its noise reduction program. It also details the conditions that must be present to qualify for a noise wall and lists ways to learn more about noise walls.

## Noise wall information

Learn more through these useful resources:

### Federal Highway Administration

Environmental information: [www.fhwa.dot.gov/environment](http://www.fhwa.dot.gov/environment)

Noise regulations: [www.fhwa.dot.gov/legisregs/directives/fapgtoc.htm](http://www.fhwa.dot.gov/legisregs/directives/fapgtoc.htm)

Virginia Department of Transportation local environmental office: [www.virginiadot.org/business/environmental.asp](http://www.virginiadot.org/business/environmental.asp) or (804)-786-2801

**For additional copies of this brochure or others in the VDOT Answers Your Questions series, please contact:**

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# Highway Noise Walls



VDOT ANSWERS YOUR QUESTIONS





### ***What is a noise wall?***

It is a specially designed structure built to reduce noise levels created by nearby highway traffic. It is built only after noise impact studies are conducted and certain conditions are met.

### ***When does VDOT conduct highway traffic noise studies?***

The Virginia Department of Transportation (VDOT) conducts studies and looks into options for reducing noise levels along proposed federally funded highway improvement projects. These projects must meet one of the following conditions:

- A highway is being built on a new location.
- An existing highway is being redesigned with a significant change in its alignment.
- The number of through traffic lanes on an existing highway is being increased.

On non-federally funded highway improvement projects, a locality can obtain partial funding from VDOT to build noise walls if the locality meets eligibility requirements outlined in the state noise policy.

### ***How are noise walls funded?***

Their cost is covered primarily with federal funds. Since federal regulations require noise mitigation be considered for qualifying construction projects, the Federal Highway Administration (FHWA) pays up to 90 percent of the cost, with VDOT and localities providing the remaining share.

### ***How is noise impact determined?***

Engineers use computer models to analyze and predict noise levels, based on the loudest hour of the day for future conditions. They also measure existing noise levels in various locations along the proposed highway project when there is no existing roadway to use for the

computer models. Along with the road's design, they must consider the area's topography, the distance between the road and nearby properties, traffic speeds and the sounds created by different types of vehicles. Using that data, the computer model predicts the future noise level, which is compared with FHWA and VDOT noise criteria. If this comparison identifies an impact, VDOT engineers must investigate noise reduction options.

### ***How can highway traffic noise be reduced?***

Several options are available. First, VDOT engineers try to reduce the anticipated noise while they are designing the road by shifting the road away from the affected properties. They also consider reducing the speed limit, restricting heavy truck traffic on the road, designing the road so its surface is lower through the affected area, or creating a natural sound barrier. If designing the road differently will not reduce noise, VDOT engineers then consider noise walls and earth berms. The effectiveness of a noise wall and an earth berm of equivalent height are relatively consistent. However, an earth berm is perceived as a more aesthetically pleasing option.

The use of an earth berm is not always an option, due to the excessive space they require. Walls are an effective mitigation measure which can reduce traffic noise significantly and improve quality of life for people living behind them. Noise walls must meet the following conditions:

- They must not create a safety or engineering problem.
- They must reduce noise levels by at least five decibels for the impacted properties that the noise wall protects.
- They must cost \$30,000 or less per noise impacted property.

### ***What if the cost is more than \$30,000 per affected property?***

They can still be built if a third party — someone other than VDOT or FHWA, such as a locality or developer — funds the difference.

The neighborhood can also participate as the third party, or the affected residents can pursue additional funding sources. Third-party payments must be received before highway construction starts to minimize the cost of the walls.

### ***What will the noise walls look like?***

Noise walls come in various materials, textures, colors and finishes. The goal is to select an attractive design that blends well with its surroundings. A consistent appearance is also one of the main considerations when the walls are to be used in a long corridor. VDOT uses a specially-designed absorptive concrete material for ground-mounted noise walls, and a lightweight material, typically absorptive metal, for structure-mounted walls, such as on bridges. Due to the type of noise environment, sound wall manufacturing capabilities and engineering costs, VDOT uses a standard aesthetic design. VDOT surveys the affected citizens and local governments about the walls' color and finish at various citizen information meetings.

VDOT encourages citizens and local government officials to make suggestions about how the noise walls will look at a project. Suggestions about the walls can be submitted during citizen information meetings and public hearings. These meetings are held periodically as construction plans for a corridor are developed.

If citizens or a locality requests an aesthetic finish that is significantly above the standard cost, VDOT allows these parties to fund the difference.

### ***Who maintains noise walls?***

Noise walls built on state rights of way are maintained and repaired by VDOT.

